PROJECT
facts

DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY

HELPING UTILITIES SELECT FUEL OPTIONS—SOFTWARE FROM CQ INC. AND ABB COMBUSTION ENGINEERING

PRIMARY PROJECT PARTNERS

CQ Inc.
Homer City, PA

ABB Combustion Engineering
Windsor, CT

MAIN SITE

Homer City, PA

TOTAL ESTIMATED COST

$22,670,000

COST SHARING

DOE	**$10,864,000**
Non-DOE	**$11,806,000**

Project Description

Utilities worldwide are facing new challenges in making fuel purchasing decisions. The lowest cost coal in terms of cost per unit of heating value may not be the lowest cost fuel in terms of the unit cost of electricity produced. Utilities must consider multiple issues when determining the most economical fuel purchase: coal cost, coal quality, transportation cost, emissions compliance strategies, plant performance, waste disposal, by-product sales, and more.

Now a revolutionary software program is available for such analyses. To aid utilities in analyzing the complex interactions between these technical and economic issues, a software program for fuel-purchasing decisions has been developed by CQ Inc. and ABB Combustion Engineering.

Data from six large-scale field tests and several bench- and pilot-scale tests were used to formulate improved technical models and algorithms, which were then incorporated into the Coal Quality Expert (CQE) software. Tests were conducted with baseline and alternate coals, using the different boiler-firing modes employed by utilities today.

Designed to run on a personal computer, the CQE program comprehensively analyzes all of the issues involved in determining fuel purchases to predict the performance and cost of operating power plants. Incorporating information supplied by leading U.S. engineering and consulting firms, CQE determines the total cost of available fuel options by integrating the effects of fuel purchase decisions on power plant performance, emissions, and power generation costs.

CQE is based on the Electric Power Research Institute's (EPRI's) Coal Quality Impact Model, which is used by more than 150 utilities worldwide. CQE also incorporates other EPRI models, such as coal-cleaning and flue gas desulfurization models. As a part of the CQE project, an Acid Rain Advisor was also developed as a stand-alone software tool to assist utilities in evaluating and planning their emissions compliance strategy.

Program Goal

U.S. coal resources are far greater than the entire world's supply of oil, and the Clean Coal Technology Program is dedicated to increasing the amount of clean energy produced from U.S. coal. The CQE project has direct reference to the program's goals:

- To demonstrate how the efficiency and environmental performance of coal-fired power-generating systems can be increased to make them highly profitable and in compliance with the most stringent environmental regulations.

- To facilitate commercialization of advanced coal-based technologies and to develop opportunities for economic growth and export.

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CONTACT POINTS

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Project Partners

BLACK & VEATCH
Kansas City, MO
(cofunding and software development)

ELECTRIC POWER RESEARCH INSTITUTE
Palo Alto, CA
(cofunding)

THE BABCOCK & WILCOX COMPANY
Barberton, OH / Alliance, OH
(cofunding and pilot-scale testing)

ELECTRIC POWER TECHNOLOGIES, INC.
Menlo Park, CA
(field testing)

UNIVERSITY OF NORTH DAKOTA ENERGY & ENVIRONMENTAL RESEARCH CENTER
(bench-scale testing)

ALABAMA POWER COMPANY
(host utility)

MISSISSIPPI POWER COMPANY
(host utility)

NEW ENGLAND POWER COMPANY
(host utility)

NORTHERN STATES POWER COMPANY
(host utility)

PUBLIC SERVICE OF OKLAHOMA
(host utility)

Project Benefits

Coal Quality Expert (CQE) is the first available software that analyzes all of the interrelated technical and economic issues that utilities must evaluate when making fuel purchasing decisions. In addition to potentially saving utilities thousands of dollars on each fuel purchase, the CQE program also has the following benefits:

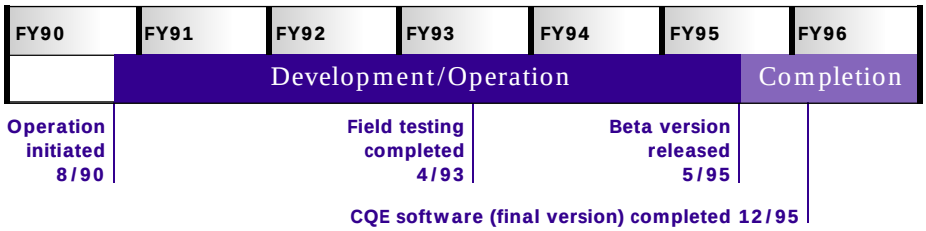
- CQE can be run on a personal computer via a powerful, graphical user interface.
- CQE can identify ways to increase the efficiency and the environmental performance of existing coal-fired power-generating systems.
- CQE software and technical support are available worldwide from CQ Inc. and Black & Veatch, the software developer.

Cost Profile (Dollars in Millions)

	Prior Investment	FY95	FY96	FY97	Future Funds
Department of Energy *	$10.9	—	—	—	—
Private Sector Partners	$10.9	$0.9	$0.008	—	—

* Appropriated Funding

Key Milestones



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